F·A·A·M facility for airborne atmospheric measurements

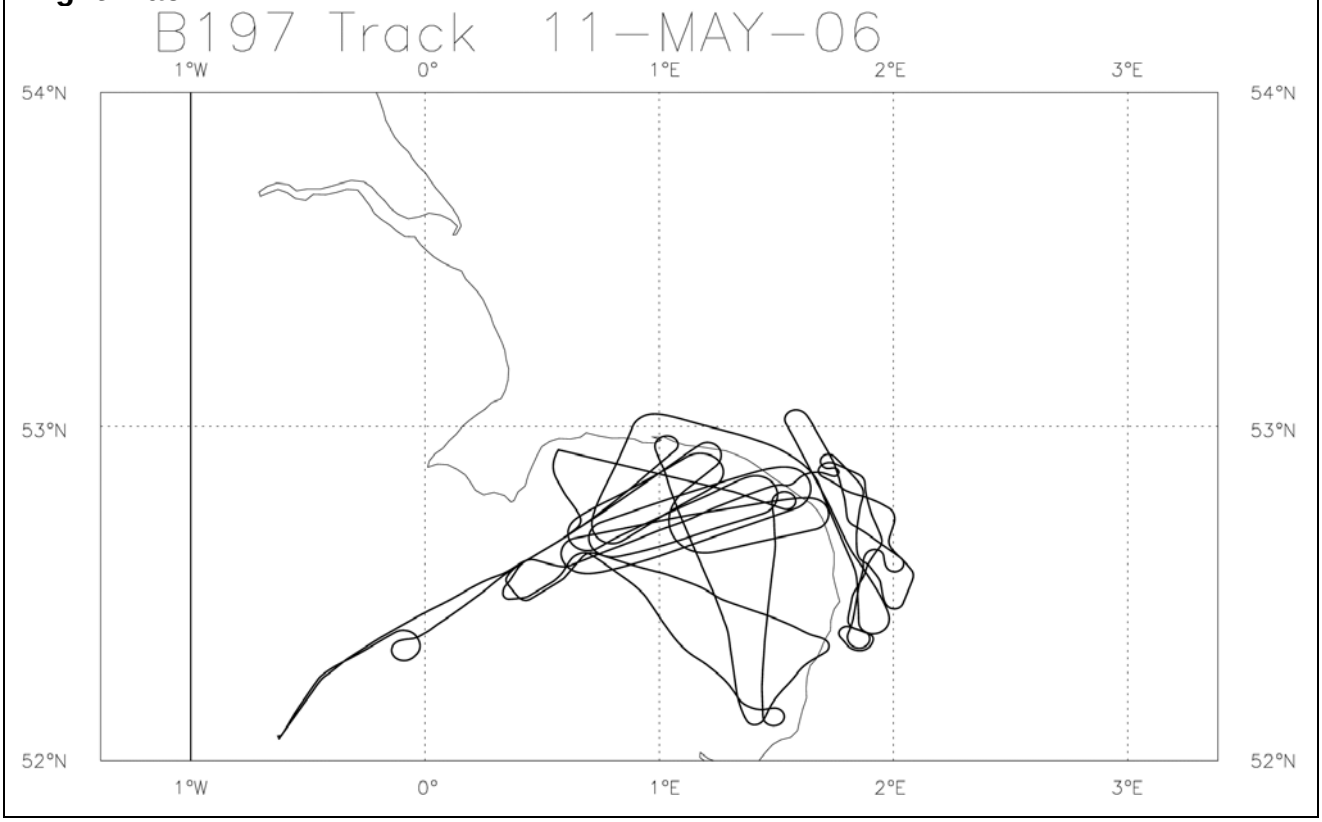
FLIGHT FOLDER

Flight No.:	B197
Date:	11 May 2006
Take Off	10:59:41
Landing:	16:03:20
Flight Time	5h03m39s

Campaign: Land Emissivity
Trials Instructions:
Operating Area: Marham & E Anglia

POB	Position	Name	Institute
1	Captain	Alan Roberts	Directflight
2	Co-pilot	Ian Ramsay-Rae	Directflight
3	CCM	Dawn Quinn	Directflight
4	Mission Scientist 1	Clare Lee	Met Office
5	Flight Manager	Maureen Smith	FAAM
6	Cloud physics / ccm2	Jamie Trembath	FAAM
7	IR camera / Miss Scientist 2	Andreas Keil	Met Office
8	Core Chem / Cloud Physics 2	Kate Turnbull	FAAM
9	Dave Tiddeman	ARIES	Met Office
10	MARSS / DEIMOS	Chawn Harlow	Met Office
11	Wet Nephelometer / PSAP	Stuart Newman	Met Office
12	SWS	Andy Wilson	Met Office
13			
14			
15			
16			
17			
18			

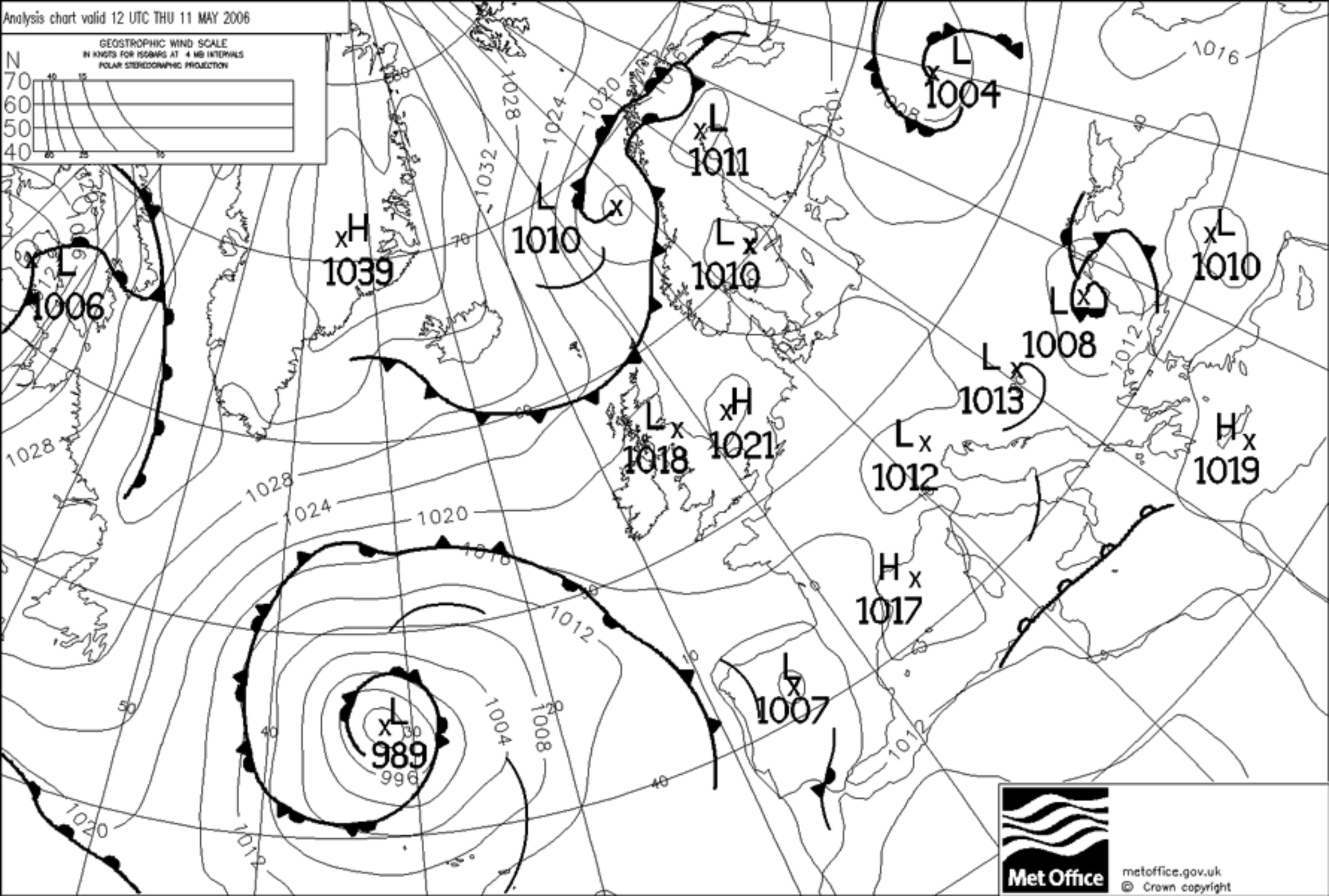
Flight Track:



FLIGHT SUMMARY

Flight No b197
Date: 11 March 06
Project: Land Emissivity and Neon
Location: East Anglia

Start Time	End Time	Event	Height (s)	Hdg	Comments
104621		Start-Up	0.16 kft	126	2'04.36N, 0'37.48W
105941		T/O	0.62 kft	030	Cranfield
110924		Video	10.0 kft	349	Start UFC & DFC
111035	112205	Profile 1	8.6 - -.05 kft	054	To 50' ovhd Marham
112205	112351	Profile 2	-.05 - 1.2 kft	053	50' to 1300',Q1019
112448	112815	Run 1.1	1.1 - 1.2 kft	335	Twds A
113000	113831	Run 1.2	1.2 kft	106	A to B
114103	115055	Run 1.3	1.2 kft	171	B to C
115316	120428	Run 1.4	1.2 kft	260	C to D , 1300'
120540	120627	Profile 3	1.2 - 1.9 kft	209	Q1017 to 2k'
121110	121430	Profile 4	1.8 - -.05 kft	030	500fpm, Marham
121431	121629	Profile 5	-.05 - 1.3 kft	054	Marham 50' - 1300'
121616	122208	Run 2.1	1.3 - 1.2 kft	054	1300'
122421	123805	Run 2.2	1.2 kft	157	E - C, Q1019
123917	124328	Run 2.3	1.2 kft	020	C - F
124154		Video	1.2 kft	031	Change tapes
124436	125531	Run 2.4	1.2 kft	292	F - D
125625	125711	Profile 6	1.2 - 1.9 kft	217	2k',Q1016
130202	130522	Profile 7	0.93 - -.04 kft	055	To 50' Marham
130522	131343	Profile 8	0.46 - 8.0 kft	054	
130820		Video	2.8 kft	052	RFC & DFC
131532	132429	Profile 8	8.0 - 17.0 kft	230	
132635	133435	Profile 8	17.0 - 25.0 kft	266	
133659	134239	Profile 8	25.0 - 30.0 kft	079	
134527	135028	Run 3.1	30.0 kft	251	Contrailing
135236	135637	Run 3.2	30.1 - 30.0 kft	077	
135858	140359	Run 3.3	30.1 - 30.0 kft	243	
140615	140917	Run 4.1	30.0 kft	055	Down Sun, roll 5deg
141148	141446	Run 4.2	30.0 kft	235	Into Sun, roll 5deg
141215		Video	30.0 kft	237	Change tapes
141643	141927	Profile 9	30.0 - 28.0 kft	015	1000fpm
141748		Event	29.3 kft	021	Stop contrailing
142039	143140	Profile 9	28.1 - 16.9 kft	103	17k' on Q1019
143224		Video	16.9 kft	106	FFC & DFC
143355	144231	Profile 9	16.9 - 8.9 kft	335	
144407	145213	Profile 9	8.9 - 0.87 kft	149	9k',Q1019 to 1k'
145603		Event	0.79 kft	175	Heimann cal
150603		Event	0.80 kft	294	Ship in IR view
151926		Event	2.9 kft	114	Ship in IR view
152330		Event	2.9 kft	162	Ship
152821		Event	4.9 kft	323	Ship in IR view
153159		Event	4.8 kft	357	Ship in IR view
153404		Event	4.9 kft	310	Roll 35deg left
153543		Event	5.3 kft	151	Roll 55deg right
160320		Land	0.22 kft	352	Cranfield
160720		Shutdown	0.21 kft	344	52'04.36N, 0'37.48W


Analysis chart valid 12 UTC THU 11 MAY 2006
GEOSTROPHIC WIND SCALE
IN KNOTS FOR ISOBARS AT 4 MB INTERVALS
POLAR STEREOGRAPHIC PROJECTION
N
70
60
50
40
L 1006
H 1039
L 1010
L 1011
L 1004
L 1010
L 1010
L 1008
H 1021
L 1018
L 1013
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H 1019
H 1017
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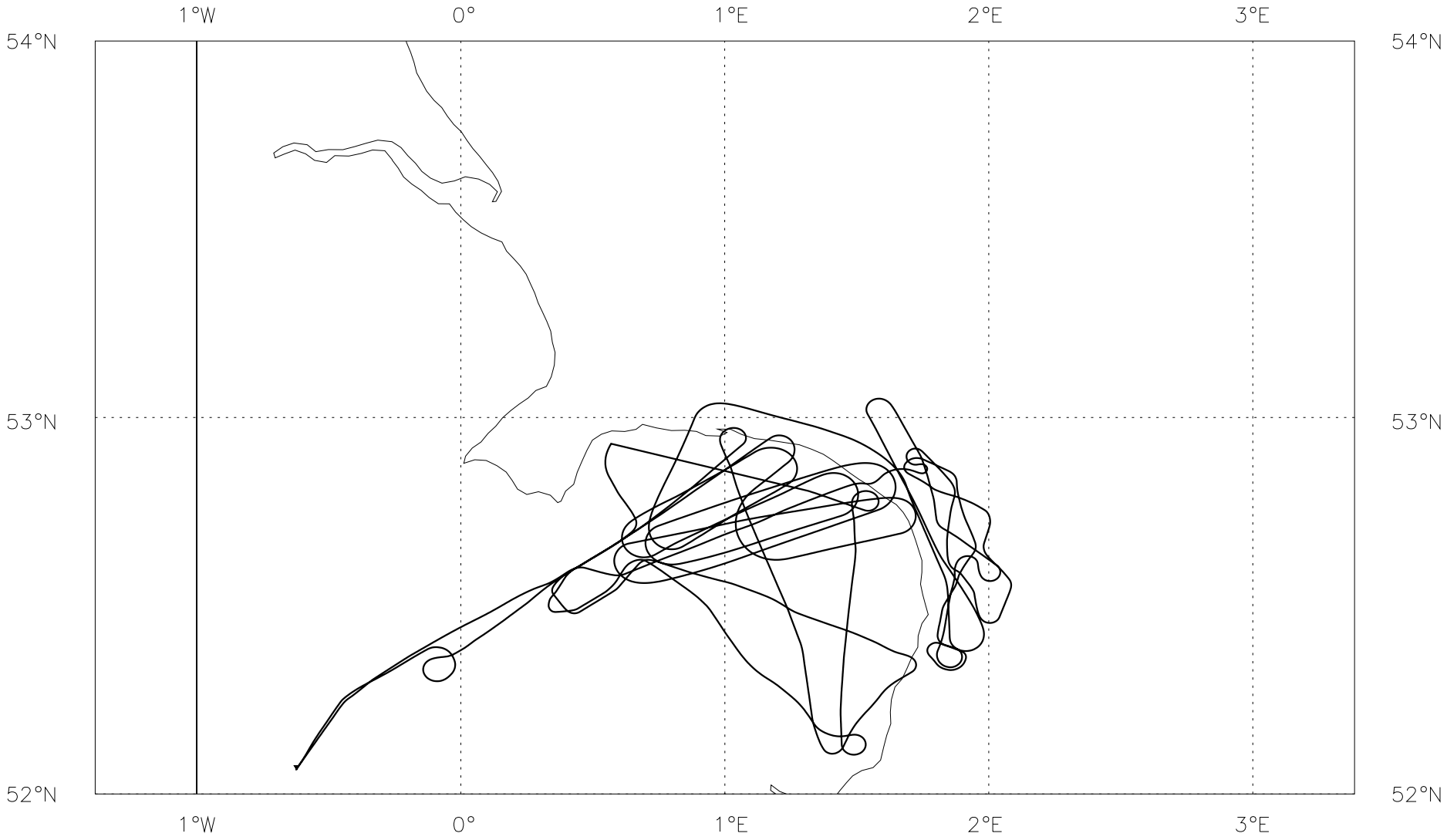
B197 Track 11-MAY-06



Land Emiss Draught Sortie.Brief

Aims
The aim is to use the ARIES interferometer to characterise Land Surface Emissivity and evaluate techniques for its retrieval by satellite instruments.

Weather Conditions
The sky must be totally cloud free in the operating area for the entire sortie.

Location of Sortie
Regions of fairly homogeneous land surface type with no large conurbations and fairly flat orography.

Instrument Requirements
SWS – nadir views at all times
ARIES – 80% nadir views, 20% zenith views
MARSS
Core kit
Ozone, CO, TWC, FWVS, Nephelometer, PSAP, PCASP, FastFSSP

Sortie Detail

1. 1100Z Take off
2. 1130Z Profile from transit altitude to 50ft as missed approach over suitable airport (e.g. Wattisham) followed by profile ascent to 500ft at 500ft/min.
3. 1140Z Fly mapping pattern at 500ft to cover a region approximately 30 by 20 nautical miles. Pattern need not cover fixed ground positions
4. 1220Z Interrupt mapping pattern for profile descent to 50ft over suitable airport followed by profile ascent to 500ft at 500ft/min.
5. 1225Z resume mapping pattern
6. 1305Z profile descent to 50ft over suitable airport followed by profile ascent to maximum altitude (~Fl350) over the operating area.
7. 1345Z fly 3 reciprocal straight and level runs of 4 mins over the operating area at maximum altitude.
8. 1405Z fly 2 reciprocal straight and level runs of 3 mins (into and away from Sun) with +/- 5 degree roll.
9. 1415Z Profile descent to shipping area in North Sea
10. 1510Z Close up to the ship to take IR cam pictures. Fly at altitudes of 1000, 3000, 5000 and 10000ft above the ship, thereby getting the ship + the ship wake in the field of view of the IR camera
11. 1540Z transit to Cranfield.
12. 1610Z Land

Mission Scientist debrief

B197 11th May 2006
Land Emissivity and NEON flight over East Anglia and North Sea
Mission Scientist: Clare Lee

Weather Conditions:

Some Cirrus was observed over the mainland UK, but it was clear over the whole of East Anglia throughout the flight. Towards the end of the flight the cloud was building to the West, but not over the operating area. Although clear sky was observed over the operating area, there were two layers of haze over the land and sea. This made it particularly difficult to spot ships during the NEON part.

Light clear sky turbulence was recorded on the mission scientist log sheet. Contrails were observed above FL293 and engine settings noted.

Land Surface:

The majority of the land surface were fields (approximately 2/10 yellow rape seed oil, 2/10 Brown field, 5/10 green field), the remaining 1/10 were trees (single and small woods) and villages.

Sortie:

During the transit some cirrus was observed and a hazy layer seen in the distance in all directions.
A profile descent from FL100 into Marham was made with the landing gear down to retain constant airflow and not to disrupt the profile. Note this gives a higher rate of descent (approx. 1300ft/min). The missed approach to 50ft was followed by a profile climb to 1300ft with gear up. The straight and level runs were made at 1300ft (1000ft above surface) from Marham to Docking (point A) to Stalham (point B) to Bentwaters (point C) to Pickenham (point D). The dirtiest (aerosol) layer was observed at point C in the SE area.
A climb to 2000ft was made to enable the second missed approach at Marham. During the missed approach the landing gear was down again, down to 50ft. This was followed by a profile ascent with gear up. Straight and level runs were made at 1300ft from Marham to Holt (point E) to Bentwaters (point C) to Clacton (point F) to Pickenham (point D). A profile climb to 2000ft was made for the entrance to the missed approach at Marham. The profile down to 50ft was followed by an interrupted profile ascent to FL300, remaining over the area of operation. Contrails started in the last part of the profile and recorded on the RFC. Three reciprocal straight and level runs were made at FL300 of approximately 4 minutes long (extended and shortened due to the wind).
For BBR tests 2 reciprocal runs of 3 minutes were performed with a +/- 5 degree roll into and down from the Sun.
A profile descent was then made towards the sea ready for the NEON part of the sortie. The profile was interrupted and gently curved to remain over the sea from FL300 to 1000ft. Some ships were observed with the IR camera (45 deg lens) during the profile descent. Manoeuvres at 1000ft were made to catch ships within the IR camera field of view. Note lower altitudes were not obtained due to the haze reducing visibility. An ascent to 3000ft was made (non profile due to air traffic). Manoeuvres were made to capture ships from 3000ft. An ascent to 5000ft (non profile) was made, followed by manoeuvres at that level to capture ships. Both ships and wakes have been measured. A roll manoeuvre was performed for the IR camera from 35 deg to left then 55 deg to right. The science was then terminated and a transit back to Cranfield made.

Instrument status:

Mission scientist laptop: Problems initially with in correct settings on laptop
Horace: Failure for approx. 4 mins between point A and B
SWS: During the first 90 mins the NIR module kept dropping out. Fixed with software and manual operation of shutter. Vis channel OK.
SHIMS: Both channels OK
ARIES: Crashed several times, but rebooted successfully. Some variable scan rates occurring.
MARSS: OK
IR camera: Some dirt on lens near end of sortie
Wetneph: OK. Some variability during turns
Cloud Physics: OK. PCASP failing at high altitudes
Core chemistry: Leak on O3 – data no good. CO also compromised.
Heimann : OK
PSAP: Failed to record data.

Mission Scientist's Log

Flight No **B**..197..... Date ..11/5/06.. Name CLARE;;..LEE.. page ...1... of .8...

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
1200 Z					Take off Cranfield.
					Some thin Ci above ~ 318
					Hazy at distance.
111035	P1↓	FL100			Profile descent towards
					Marham with gear down.
1120					Can't get horace to work
					on MIS laptop.
					Hazy in distance, no Ci above
					2 distinct layers?
1223		1500ft.			Clear above.
					Generally green, yellow + brown
					fields below, some small woods
					+ isolated trees.
112205	P1end	50ft.			Missed approach to Marham
	P2↑	50ft.			
112351.	P2end	1300ft.			
112448	R1-1	1300ft.			Run to point A.
112815	R1-1end	1300ft.			At point A.
	[redacted]				Turning right.
	R1-2	1300ft.			SWS MIR keeps dropping out.
					Horace crash / frozen.
1235					Horace ok, still nothing on MIS
					laptop.
113831	R1-2end				At point B. Got horace back.
					Turning left.

Mission Scientist's Log

Flight No **B** 197 Date 11/5/06 Name ~~CLARE~~ LEE age 2 of 8

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
114103	R1.3	1300ft.	170	52°42'N / 1°24'E	
Turbulence. 114210					Small turbulence for ~all run.
					clear sky
					Haziet towards S.
					SWS NIR drops at needs
					resetting every 5 mins or so.
					VIS channel OK.
115003					Dew pt. increasing as heading S.
					+Getting turbulence increasing slightly.
					$T = 14.65$, $T_D = 9.8°C$
115055	R1.3end	1300ft.		52°6'N / 1°24'E	At point C., turning left.
115316	R1.4	1300ft.			C→D
					Cloud phys.: clean A→B
					B→C dirtier air - drier at C
					Wetzgh growth factor 1.7 at
					90% RH.
					More Haziet in S. No C
115615					Still some small turbulence.
					all along run.
					wind ~ 1 m s⁻¹
					Dew pt. decreasing as heading N.
					PCASP ~ 2000 cm⁻³ (still not clean)
120420					Much cleaner now.
120428	R1.4				End run at pt. D.
120540	P3T	1300ft.	210	52°30'N 0°30'E	Climb for missed approach into Marham.

Mission Scientist's Log

Flight No **B**197 Date 11/5/06 Name ~~CLARE~~;;~~LEE~~ age 3 of 8

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
120627	PBend	2000ft	232		Positioning for missed approach.
121028		2000ft	030		Gear down + flaps 33 - slow
121110	P4↓	2000ft	030	52°30'N/ 0°24'E	Missed approach at Marham
					N.B. large drop in T_D ~1210
121431	P4end	50ft	053	52°36'N/ 0°30'E	Wind ~3ms⁻¹, [redacted] 0°
	P5↑	50ft			Gear up. flaps 18
121616	PBend	1300ft			
	R2.1	1300ft	050		Run from Marham → pt E
122208	R2.1end	1300ft		52°54'N/ 1°6'E	Turning left at pt E. No sig. turbulence
122421	R2.2	1300ft			from E → C.
122541					~2 secs of turbulence. v small
122553					~5secs " " v. small.
122620					small turbulence continuously.
					PCASP seeing increasing gradient
					of aerosol.
					Wetcap dropping / falling back
					with increasing humidity.
					T_D = 5.23°C T = 14.4°C
					Still hazy, no Ci
123321					SWS has fixed shutter problem
					which was cutting out NIR mode.
					Now all working SWS vis + NIR +
					SHIMS vis + NIR.
123805	R2.2end	1300ft		52°0'N/ 1°24'E	At C.
					Turning left.

Mission Scientist's Log

Flight No **B** 197 Date 11/6/06 Name CLARE;; LEE age 4 of 8

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
123917	R2.3	1300ft.	038		pt. C → F
					larger turbulence at C.
					PCASP highest pt. at C.
					3000 cc. as before.
124328	R2.3end	1300ft.			At pt. F Turning left.
124436	R2.4	1300ft.	289	52°18'N/ 1°36'E	from F → D.
					still small amounts of turbulence.
					Hazy, no Ci above.
					Wetness increasing smoothly to
					1.7 as humidity increased to 90%
					Hazier, cloud? to W.
125531	R2.4end			52°36'N/ 0°36'E	At pt. D
					Still small turbulence.
					Turning left *
125625	P6↑	1300ft.	217		Profile climb for entrance to
125711	P6end.	2000ft.			missed approach.
					turning right for position.
130202	P7↓	2000ft.	131	52°24'N/ 0°24'E	Missed approach at Marham
					Some Ci to W. gear down, flaps ↑
130522	P7end.	50ft.	053	52°36'N/ 0°30'E	Profile climb to high altitude
	P8↑	50ft.	053		Haze seems to be a layer
					few kft above surface.
132259		16000ft.	078		Some Ci to S over ocean
132428	P8int.	FL170			Turning left. interupt to profile.
131343	P8int.	FL80			Also was interupt. at 8000ft.

missed logging.

Mission Scientist's Log

Flight No **B**.197..... Date ..11.06.06..... Name CLARE;;...LEE.. age .5. of .8..

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
132635	P8rec.	FL170	257		Recommencing particle.
					Ci to S+W. Clear sky ahead
					East Anglia though.
					No turbulence during climb.
133435	P8int.	FL250	257	52°36'N 0°36'E	Profile interrupted - Turning to
					left. During turn 2D saw
					maybe graupel - visually saw
					small Ci patt
					T -39.4°, T_D -38.2°
133659	P8rec.	FL250	074		Recommencing profile.
134239	P8end.	FL300	070	52°42'N 1°30'E	End of profile.
					Contrails:
					N1 95.9, TGT 764, N2 86.3
					FF/FU 4.8
					~~Transect~~ Start of contrailing
					should have been recorded in RTC
134527	R3.1	FL300	250		Clear sky. Ci in distance
					wind: 9ms^{-1} / 231°
					contrailing - engine settings: T -51.54, T_D -52.09°
					N1 85.3 TGT 658
					N2 85.6, FF/FU 4.4
135028	R3.bnd	FL300			end run turning left.
135236	R3.2	FL300	071		Reciprocal run.
1352					AIRIES crashed - rebooting.
1355					2D possibly seeing a few particles.

Mission Scientist's Log

Flight No **B**..197..... Date ..11/5/06..... Name ..CLARE;;..LEE..... age ..6.. of ..8..

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
135637	R3.2end	FL300			End run. ARIES back on. calibration.
135858	R3.3	FL300	243	52°48'N / 1°12'E	Start run - reciprocal. (to W)
					Still clear, building Cu in W.
					Hazy below, but no cloud.
140359	R3.3end	FL300		52°36'N / 0°42'E	End run. turning right for
					runs into/away sun for BBR tests.
					SAzimuth = 228.7°
140615	R4.1	FL300	056		Run away from sun with
					gentle roll +/- 5° SZA = 44.8°
140917	R4.1end	FL300	055	52°54'N 1°6'E	Turning right. SAA = 230.7°
141148	R4.2	FL300	235		Into Sun with gentle roll ±5°C.
					No turbulence really.
141446	R4.2end	FL300	236	52°36'N / 0°42'E	(Western side) Turning right.
141643	P9↓	FL300	015		Profile descent towards sea.
141730		FL293			Contrails stopped. Engine settings
					N1 = 79.5 , TGT = 59
					N_2 = 82.4 , FF/FV = 3.7 on FFC
					$T = -49°$, $T_D = -52°$
141927	P9int.	FL280			Interrupting profile turn right.
					Over ocean
142039	P9rec.	FL280	109	53°30'N / 1°0'E	Recommence profile over ocean.
					Still in clear sky. - a bit
					drier than previous profiles.
					$T = -41.97°$, $T_D = -50.8°C$

BBR tests

NEON starts.

turning rand east during descent.

Mission Scientist's Log

Flight No **B** 197 Date 11/5/06 Name CLARKE; LEE page 7 of 8

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
1426					Gi to SW. Still hazy below.
143140	P9 int.	17000ft.	180	52°24'N/ 1°48'E	Interpt profile descent. Turn left.
143355	P9 rec.	17000ft.	333°	52°24'N/ 1°54'E	Reciprocal direction, (N) recommence profile descent.
144231	P9 int.	9000ft.		52°54'N/ 1°30'E	Interpt profile turning right reciprocal.
144607	P9 rec.	9000ft.	152	52°54'N 1°36'E	Recommence profile → SE
144920					Turning left slightly to catch ships on way down.
145213	P9 end	1000ft.	128	52°36'N/ 1°54'E	End profile. V. Hazy — no horizon. Some Gi above.
					Turning right to catch same ships
					Turning left to avoid helicopters
					Heading S. visibility ~ 4.5 km
145628		1000ft.			Ship then wake.
145904					Ship
					Turning back to get same one.
150559		1000ft.	296		Closing with ship rather than right angle.
					(Ship then wake.)
150930		1000ft.	014		Dirty wake then ship
151028		1000ft.	026		Ship + wake. (bit too close)
151345		1000ft.	348		ship from L to Right.
151440		3000ft.			Ascent to 3000ft. not profile due to air traffic.
		3000ft.			
151746		3000ft.			Ship then wake. Bottom of area only.
151922		3000ft.	112		wake then ship.

Mission Scientist's Log

Flight No **B** 197 Date 11/5/06 Name ~~GRACE~~ LEE age 8 of 8

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
152000		3000ft.	173		Small ship.
					visibility more to S.
152320		3000ft.	138		wake then ship.
					~3/8 Ci above.
152700		3000ft.	352		Ascent to 5000ft.
152825		5000ft.			On turn ship captured. + wake
153158		5000ft.	7		Ship going from Right → left.
153355		5000ft.			Roll 35° to left.
					Roll 55° to right.
1536.					Transiting to Cranfield.
1605					Land at Cranfield
		Instrument status:			
				ARIES	Some variable scan rate + crashes
				SWS	Initally NIR dropped at, then OK last 2-3hrs.
				SHIMS	OK.
				MARSS	OK. except ch16.
				IR Camera	some dirt on lens near end
				Wetnephs	OK. Some variability during turns.
				Cloud Phys.	OK. PCASP at high → internal leak
				Core Chem	OK. except O3. failed, maybe CO compromised.
				Heimann	OK.
				Horace	lost 4 mins data. between A→B.

Teil /
1/52

Land Emissivity + NEON (ship chasing)

Aircraft Scientist's Log

T/O 12:55 Coral

Flight No B197 Date 11/5/06 Page 1 of 2

FAAM © 2004

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
10:59:43		0		Cranfield	TAKE OFF
	(1.)	Land Emissivity			
					climb to 10k, totally cloudy
11:10		10,000			descent from FL100
		00			→ then up to 7.1k
from about 11:20		7:20	—		→ 4min. no data records HORIZ down
11:38:31				(B)	} IR records, "dirty" on ASIP
11:51:03				(C)	
12:55				(D)	2.4 finished
14:40		30k			some Ci above!
	(2.)	NEON - (ship chasing + vertical profiles)			
14:40 —		30k		along coastline	profile 30k to 50ft starts
		17k		—	profile break —
14:33:55		17k↓			profile continues
14:42:31		9k		—	profile break —
		9k↓			profile continues
		(ship chasing)			VIS ≈ 4 km only near ground
		2k			1 ship BL height ≈ 1700 ft
		1k			several ships
		3k			several ships
		5k			2 ships
					→ continued

vert. profile over sea

ships

2 min in 250ft for Helen calib ▽

IR Cam diff

VIDEO recording ↓ + fw

13: −35° to +55° roll angle change, continuous??

Aircraft Scientist's Log

Flight No B.197 Date 11/5/06 Page 2 of 2

FAAM © 2004

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
around					"IR-roll" (−35 to +55°)
15:36				North	↑ potentially maybe to be exchanged
				Sea	
				flying	
				South	
				along	
				coast	
					then Transit back
17:00 local		= 18:00			LANDING
Alan Ralsen? :			45°		real older view in azimuth too?
ARIES :		probs			
wet/Neph :		O.K.			
Heimann :		O.K.	incl.	calib. over ocean!	
ME :		O.K.,	→ varying vis (down to 4km, compared to 16km yesterday during B196)		
Total flight time = 5h					

11/5/06

P.S.A.P. Log

Flight No. **B**..197..... Date 11/05/06..... Page ..... of .....

GMT	Filter Trans.	Flow Rate	B_a x 10^{-6}	Ph_det levels		Run	Remarks
Set to DRS time	New filter Tr = 1.000	Set to 3.0 lpm				(30s) ? Ave = s	←Preflight
110700	1	3	5.3	20	48	30	
112630							Reset flow rate from 4.4 to 3.0
1348		2.2	0.0	15	48	30	Max. flow rate is 2.2
154200	.648						psap stop

CORE CHEMISTRY FLIGHT LOG FOR FLIGHT FOLDER

Flight Number : B197
Date : 11/05/06
Operator and contact info : Kate Turnbull (katet@faam.ac.uk)

Problems with Instruments

CO	**No Nitrogen flow through optical filter during flight; compromised data**
O_3	**Internal leak due to broken part; compromised data**
NO_x	**NO2 and NOx channel calibration constants compromised**
SO_2	**N/A**
TDLAS	**N/A**
WAS	**N/A**

Glow 2 IR test

ARIES flight log

Flight: B197 | Location: E Anglia | page 1 of 4

Date: 11/05/06 | Operator(s): TIDDEMAN | Resolution: 1 | Gain A: 2 B: 2

Notes:

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
.		B197A..D							B197A GLEW B197D	Practice on ground
112357	Run 1300ft	B197E	C	71	31	18	-191	27	CH1 x 1	
112508	Run 1.1	B197F	C	71	31	18	-190	27	Glow2 x 8	
112837	"	B197G	C	71	31	18	-191	27	CH1 x 1	
112953	Run 1.2	B197H	O	70	31	19	-190	27	21 x 1	
113205		B197I	C	.			—	—	~~CH1~~ Glow2	Fell over
113833		B197J	C	71	31	20	-190	27	CH1 x 1	
114027		B197K	C	71	31	20	-190	27	Glow2 x 8	
114334		B197L	O	71	31	20	-191	27	21 x 1	
114528		B197M	C	71	31	20	-191	27	CH1 x 1	
114639		B197N	C	71	31	21	-191	27	Glow2 x 8	Fell over again
1151 --		B197O	C	71	31	21	-191	27	CH1 x 1	
115239		B197P	C	71	31	21	-190	28	Glow2 x 6	
115604		B197Q	C	71	31	21	-190	28	CH1 x 1	
115715		B197K	C	71	31	21	-190	28	Glow2 x 6	
115946		B197S	O	70	31	22	-190	28	21 x 1	
120130		B197T	C	71	31	22	-190	27	Glow2 x 2	
120232		B197U	C	71	31	22	-191	27	CH1 x 7	
120351		B197V	C	71	31	22	-191	28		Fell over

ARIES flight log

Flight: B197	Location: E. Anglia	page 2 of 4
Date: 11/05/06	Operator(s): TODEMAN	Resolution: 1	Gain A: 2 B: 2
Notes:		

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
121617	Run 13.0N	B197	C	71	31	20	-191	28	CH1 x 1	
121728		B197X	C	71	32	20	-190	28	Glow2 x 8	
122033		B1974	C	71	31	21	-190	28	CH1 x 1	
122143		B1972	O	70	31	20	-190	28	230 x 1	Turned software AH + on
122342	Turn	B1920	C	71	31	21	-191	28	CH1 x 1	
122451	Run E→C	B1971	C	71	31	21	-191	28	Glow2 x 8	
122759		B1972	C	71	31	20	-190	28	CH1 x 1	
122915		B1973	O	70	31	21	-191	28	21 x 1	software AH + on
123137		B1974	C	71	31	21	-190	28	Glow2 x 8	
123464		B1975	C	71	31	21	-191	28	CH1 x 1	
123648		B1976	C	71	31	22	-190	28	Glow2 x 8	— Failed Aborted
123858	Turn	B1977	C	71	31	22	-190	28	CH1 x 1	
124006	C→F	B1978	C	71	31	22	-191	28	Glow2 x 8	
124322	Turn	B1979	C	71	31	22	-191	28	CH1 x 1	
124448		B197A	O	70	31	22	-190	28	21 x 1	
124722		C197B	C	71	31	21	-191	28	glow2 x 8	
125041		C197C	C	71	31	22	-191	28	CH1 x 1	
125206		C197D	O	70	30	21	-191	28	21 x 1	
125424		C197E	C	71	31	22	-191	28	glow2 x 8	

ARIES flight log

Flight: B197 | Location: E Anglia | page 3 of 4

Date: 11/05/06 | Operator(s): TIDDEMAN | Resolution: 1 | Gain A: 2 B: 2

Notes:

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
125601	CREEP	C197F	C	71	31	22	-191	28	CH1 x 1	
1300										Scan speed variable
134235	FL300	C197G	C	71	31	-13	-191	24	CH1 x 1	
134408	"	C197H	C	71	31	-15	-191	23	N1 x 4	
134952	"	C197 I	C	70	30	-19	-191	19	N1 x 1	Scan rate problems rebooted
135523	"	C197 K	C	71	31	-23	-191	18	CH1 x 1	
135901	"	C197 L	C	71	31	-25	-190	18	N1 x 4	
140255	"	C197 M	C	71	31	-26	-190	18	CH1 x 1	
140617	"	C197 N	C	71	30	-27	-191	16	N1 x 3	BBR runs
140911	"	C197 O	C	70	30	-27	-191	16	CH1 x 1	
141150	"	C197 P	C	71	31	-28	-191	17	N1 x 3	
145050	—	C197 Q	C	71	31	2.6	-191	17	CH1 x 1	Resolution 16cm^{-1}
145210	1000ft	C197R	C	71	30	4	-191	17	IR_FAST	
145352	"	C197 S	C	71	31	8	-190	17	CH1 x 1	
145630	"	C197 T	C	71	31	8	-190	17	ir_fast	ship?
145802	"	C197U	C	70	31	1.2	-190	17	ch1 x 1	
145906	"	C197V	C	71	31	13	-190	18	ir_fast	ship
150150	"	C197W	C	71	31	17	-191	19	ch1r_fast	
150453	"	C197X	C	70	31	17	-191	19	ch1	

2

ARIES flight log

Flight: B197 | **Location:** Sea | page 4 of 4

Date: 11/05/06 | **Operator(s):** TUDDENHAM | **Resolution:** 16 | **Gain A:** 2 **B:** 2

Notes:

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
150601	1000ft	C1979	C	71	31	18	-190	19	ir_fast	Ship
150901	"	C1972	C	71	31	18	-191	19	ch1 x1	
150926	"	C1970	C	71	31	19	-191	19	ir_fast	Ship - good one
151104	"	C1971	C	71	30	19	-191	20	ch1 x1	
151345	"	C1972	C	71	31	19	-191	20	ir_fast	Ship
151634	3000ft	C1973	C	71	31	19	-191	20	ch1 x1	
		C1974							ir_fast	Aborted
151916	"	C1975	C	71	31	19	-191	21	ir_fast	Ship
152104	"	C1976	C	71	31	19	-191	21	ch1 x1	
152321	"	C1977	C	71	30	19	-191	21	ir_fast	Ship
152528	"	C1978	C	71	31	19	-191	21	ch1 x1	
152608	"	C1979	C	71	31	19	-191	21	ch1 x1	Sea
153150	5000ft	D197A	C	71	31	17	-190	22	ir_fast	Ship
153330	"	D197B	C	71	31	17	-190	22	ch1	
153620	"	D197C	C	71	31	17	-191	22	ch1	
153553	"	D197D	C	71	31	17	-191	22	ir_fast	Sky. 55° bank

Microwave Radiometers FLIGHT LOG	Date	11/05/06	Flight	B197	log pages	2

Operator(s)	Chawn Harlow	Campaign	CAESAR/VisUrb
Departure	Cranfield	Arrival	Cranfield

System start

MARSS

Visual pod inspection						•
Close 3 SSP circuit breakers						•
Close all MARSS circuit breakers						•
FERA on				at time	08:18	
Temperature controller initial temps	Ch16	22°C	Ch 17	23°C	Ch18	20°C
Temperature controller set points		54°C		58°C	-20	40°C
MARSS CPU on				at time	08:22:35	
Initial target temperatures	Hot	292		Cold	292	
Target heating						•
*** CHECK SCAN HEAD CLEAR ***						•
Scanning on (LMD box)				at time	08:18:08	
Scan indication		Monitor	•		Visual	•

Deimos

Close all Deimos circuit breakers						
Turn on Deimos CPU						
*** CHECK SCAN HEAD CLEAR ***						
Start Deimos Software				at time		
Initial target temperatures	Hot			Cold		
Target heating						
Scan indication		Monitor			Visual	
Weather	Cloud	Thin Ci		Precip	none	
	Surface	dry		Pressure	H	
	Other					

System functionality check

(after initial system warmup, approx 1 hour)

PC to DRS Time error		$t_{PC}=t_{DRS}$ +	0	at time	09:27:39	
Brightness temps 'sensible'						•
Target temps	MARSS:	Hot	345	Cold	295	
	Deimos:	Hot		Cold		

Channel gains 'sensible'	Ch1 A (-)	Ch3 A (-)	Ch1 B (-)	Ch3 B (-)	
	Ch16 (40-44)	Ch17 (45-49)	Ch18 (40-44)	Ch19 (40-44)	Ch20 (44-48)
	1	35	39	41	42

Power changeover

Headset on before start			•
Listen to engine start sequence	4, 3, 2, 1.		•
LMD off (3 switches, bottom to top)			•
Exit Deimos Software (x)			
POWER CHANGEOVER			
LMD on (3 switches, top to bottom)	then pushbutton		•
Restart Deimos Software			
System running again		at time	
		10:46	

Flight #	B197	Date	11/05/06	Operator(s)	Halrow	log page	2	of	2

Time	**Run id**	**Alt/FL**	*Remarks*	**Sys**
			Ch 16 US Deimos not installed	

Wet Nephelometer Log

Flight No **B**.197..... Date ..11/5/2006.. Operator's name: ..S. NEWMAN..... Page ..1.. of .....

GMT	Run	Height	Sample flow	Dry neph RH	Wet neph RH	Temp ramp	T_{water}	Remarks
105942	T/O		12.9					Transit
1108	} tests } prof		12.9	14%			5	↓ Ramp up to 40°C, Ratio slightly less than 1.0
1117	}	} desc.	13.8	10	66		40	Flow rate rose above 14, so reset to 13.8
1120				36	89/71	40	40	Flow rate readjusted 14.5 ↓ 12.9
112705	end prof.	50ft	13.7	40	89/71	40	40	
1124		1300ft	13.6	39	87/78	40	40	
112448	R1.1	"						
1128		"	13.8	21	80/74	40	40	Increase ramp T to 42°C
1130		"	13.7	17.8	83/76	42	42	
1133		"	13.7	21	78/77	5	39.6	Ramp down
1136			"	29	49/59	5	25.8	wet:dry ratio settling back to ~0.95
113831	end R1.2	1300ft	13.7	31	41/49	5	19.1	
114103	start R1.3	"	13.8	31	37/43	5	14.6	Operator discovers wet neph slow to cool
1145		"	13.8	41	39/41	5	10.1	Ramping back up
114530		"	13.7	44	42/41	45	13	
114640		"	13.6	46	58/57	45	25	
114830		"	13.6	47	92/65	45	40	
145030		"	13.7	51	97/82	45	44.5	W:D up to 1.4
115055	end R1.3							
115316	start R1.4	1300ft	13.7	51	98/88	45	44.8	

Wet Nephelometer Log

Flight No **B**...197.... Date ..11/5/2006 Operator's name: S. NEWMAN..... Page ..2.. of .....

GMT	Run	Height	Sample flow	Dry neph RH	Wet neph RH	Temp ramp	T_{water}	Remarks
1156	1.4	1300 ft	13.6	50	98 | 91	4S	44.9	Ramping back down, W:D max ≈ 1.7
115730	"	"	"	49.7	96 | 89	2.5	38	
1200		"	13.9	46.1	85 | 75	"	27	W:D ≈ 1.2
1203		"	13.7	43.5	49 | 58	"	19.5	W:D ≈ 1.0
120448	end R1.4	"	"	40.6	44 | 53	"	16	"
120540	P3							
120627	end	2000 ft prior to descent	13.4	40.3	41 | 47	"	12.6	Seems to have levelled off W:D ≈ 1.0
1209			13.1	23	31 | 41	2.5	9.8	Keeping ramp T at 2.5 prior to next run
121431		50 ft ↑	13.7	38	36 | 46	2.5	5.1	
121616	R2.1	1300 ft	13.8	40	38 | 35	2.5	4.3	Ramp up (4S target)
1218	"	"	"	35	38 | 34	4S	15	
1220	"	"	13.6	25	71 | 45	4S	34	W:D not increasing much so far this run as T ↑
122208	end R2.1	"	13.7	21	97 | 72	4S	44.3	W:D ≈ 1.5
122421	start R2.2	"	13.7	19	98 | 80	4S	44.9	
1228		"	13.7	38	98 | 86	4S	4S	Blip in W:D, PCASP reports incr. conc. Ramp down
1230		"	13.7	39	96 | 87	2.5	41	W:D ≈ 1.6 peak
123330		"	13.7	40	63 | 66	2.5	27	W:D ≈ 1.1
1237		"	13.7	47	49 | 57	2.5	18	W:D ≈ 1.0
123805	end R2.2	"	13.8	51	49 | 53	2.5	16	W:D levelled off, ramp up
123917	R2.3	"	13.7	52	54 | 52	4S	~20	

Wet Nephelometer Log

Flight No **B**...197..... Date ...11/5/06..... Operator's name: ...S. NEWMAN..... Page ...3... of .....

GMT	Run	Height	Sample flow	Dry neph RH	Wet neph RH	Temp ramp	T_{water}	Remarks
1241	R2.3	1300ft	13.7	53	84/66	45	36	
124328	end R2.3	"	13.6	48	98/86	45	44.5	W:D up to ≈1.6
124436	start R2.4	"	13.4	45	98/88	45	44.8	
1250	R2.4	"	13.6	41	97/91	45	45	W:D ≈ 1.7, ramp down
1251	"	"	13.6	41	97/91	2.5	39.5	
1255			13.7	41	54/65	2.5	24	W:D relationship shows blip on way down from high RH
125531	end R2.4	"						
125625	start R6	↑2000'						
1259		2000'	13.2	36	42/55	2.5	15	W:D ≈ 1.0
130202	start R7	2000' ↓	12.8	32	34/42	2.5	10.5	W:D erratic; increasing T to 40 target
130522		50ft	13.5	40	82/61	40	38	
1311		↑	11.8	14.8	94/74	40	40	
1318		↑	9.7	7.0	93/79	40	40	↑flow rate to 12.3
1344		FL300	6.2	0.0	98/96	40	40	~~↑flow~~ ↓T to 2.5C target
134527	R3.1	"						
1350	"	"	6.2	0.0	99/82	2.5	22	Not much signal (high scatter)
135028	end R3.1	"						
1352								↑flow rate to 12.0
135236	R3.2	FL300	12.0	0.0	43/44	2.5	15.5	
1355	"	"	12.1	0.0	16/29	2.5	11.3	

Wet Nephelometer Log

Flight No **B** 197 Date 11/5/06 Operator's name: S. NEWMAN Page 4 of .....

GMT	Run	Height	Sample flow	Dry neph RH	Wet neph RH	Temp ramp	T_{water}	Remarks
135637	end R3.2	FL300	12.1	0.0	12/25	2.5	9.6	Just noise?
135858	R3.3	"	12.0	0.0	9/12	2.5	7.3	
1400	"	"						Increase target T to 20°C
1403	"	"	12.1	0.0	29/28	20	19.9	Increase again T ↑ 40°C
140359	end R3.3	"	12.1	0.0	37/30	20	25	
140615	start R4.1	"	12.1	0.0	97/69	40	39.5	Down-sun rolling manoeuvres
1408	R4.1	"	12.3	0.0	99/71	2.5	36	T ↓ 2.5°C target (RH ~100%)
140917	end R4.1	"	12.4	0.0	67/51	2.5	28	
141148	start R4.2	FL300	12.3	"	35/32	2.5	19.9	Into sun
1424	P↓	FL240	15.2	0.0	9/10	2.5	3.9	Decreasing flow rate to 10.7
1425								Target T ↑ to 20°C
1426	P↓	FL220	11.1	0.0	10/13	20.0	13	
1429	"		12.5	0.0	34/26	20.0	20.0	Target T ↑ 30°C
143030	"	FL180	13.1	0.0	44/29	30	27.9	
1434	"	FL170	13.4	0.0	65/45	30	30	Target T ↑ 38°C
143730	"	FL140	15.0	0.0	88/63	38	38	Flow rate ↓ to 10.7
1441	"	FL105	12.0	0.0	95/70	38	37.8	Still large scatter on W:D ratio
1448	"	5300'	14.4	6.7	81/70	38	38	
1453		1000'	10.5	42	89/78	38	38	T ↑ 40°C
145430		"	10.6	43	98/84	38	38	

Wet Nephelometer Log

Flight No **B**197 Date 11/5/06 Operator's name: S. NEWMAN Page 5 of .....

GMT	Run	Height	Sample flow	Dry neph RH	Wet neph RH	Temp ramp	T_{water}	Remarks
145530		1000'	10.6	44	100/86	40	40	Ramp down (2.5°C target)
1457		"	10.5	42	98/86	2.5	33.5	≈1.6 max W:D
1500		"	10.6	36	59/69	2.5	22.5	W:D ≈ 1.2; erratic behaviour in turns
1505		"	10.6	37	42/51	2.5	11.6	Ramp up (40°C target)
1509		"	10.7	42	95/70	40	38.7	W:D ≈ 1.35
151130		"	10.6	46	100/84	38	39.5	T ↓ 38°C (RH near sat.)
1518		3000'	11.9	20	100/80	2.5	33	Ramp T down
1520		"	11.9	21	60/64	2.5	24.3	Not Stl, may be affecting meas.
1524		"	11.7	27	42/51	2.5	16.3	Levelled off, incr. T
1525		"	11.8	27	45/48	38	24.8	W:D < 1.0 at dryest wet neph conditions
152630			11.6	27	91/69	38	37.2	Climbing to 5000 feet, some sharp turns
152930		5000'	11	15	95/76	38	38	
160320		LAND						

Land Em. + NEON (Ship chase)

Remark:
→ desperate need for spotter cam recordg !!!

IR CAMERA FLIGHT LOG

Flight No. B197
Date 11/5/06
Fitted Lens 45°
Active NUC 050126_NUC3
BPM Filename SMT

Campaign CEAMR II
Operator VEIL/WILSON
Camera Angle 35°

Source Ref. Temp.	Hot
	Cold

DATA RECORDING Start Time	DATA RECORDING Stop Time	Run Number	Height	Remarks
PRE-FLIGHT				TEST 2x, when shutter closed
TAKE/OFF at 10:49 SMT				
11:32	11:33			climing 50 ft → ≈1500 ft
11:41:40	57:03			run B→C, 1.1 kft, 940 mb
B	C		1.1kft	flying at constant height
				11:44:00 over mist
				11:46:08 RAPS FIELD ! upper
				11:47:01 " FULL !
				11:47:24 GRASS FIELD ! FULL
				11:50:20 Plowed-fH
				11:51:07 AIR FIELD ! + Grass
				≡ STOP OF RECORDING
13:05	13:07:00			climb 50 ft Workum to 1.5 kft
				runway in FOV shortly
13:33:53	34:32		25k	FL250 many RAPS FIELD IN FOV (now black ! near left side !)
13:37:10	37:17		25k	Runway in FOV
13:44:50	45:05		30k	Coastline, Water in left lower corner of IR pic (incl. Sandy beach)
14:11:00	11:39		30k	Roll ±25 deg ! includes horizontal line of view (= flying up!) + upward flight view + downward flight view seeing coastline ! (! last 5-10 sec → less tall !)
14:20	14:20:()		27k	Profile over Sea from 1.7k ft (30 sec)
—	14:23:56		25k	(5 sec)
—	14:27:24		20k	incl. Ship along upper edge ! (5 sec)
—	14:36:40		15k	570 mbar, incl. coastline in FOV (10 sec)
—	14:41:40		10k	700 mbar (some problems: flickering cam!) (10 sec)
—	14:49:06		4k	flickering again (10 sec)

Recording time shift: e.g. 11:51:03 SMT ≙ 08:32:06 PC-time

about !

DATA RECORDING		Run	Height	Remarks
Start Time	Stop Time	Number		
			~~XXXX~~	Ship diving / Nathalie
				caught:
2k — 14:	50:48		2k	✓ left upper corner, ship + wake!
— 14:	56:53	⇒	1k	✓ ship + wake
— " :	59:50		"	— failure —
— 15:	03:27	1kft	"	— " —
— 15:	06:13		"	✓ nice big ship, no wake
—	09:45		"	Perfect one !!! middle + wake !!
1k — 15 :	10:31		"	— semi - failure —
— 15 :	13:59		"	Perfect !!! ship + shipwake
—				
— "		Dirt	on	I can !!!
—				
—			3k	— failure —
— 15 :	18:01		"	— failure —
— " :	:	3kft	"	
— " :	:		"	
3k — " :	: 2			nice one ! + wake
"	:20:27			small vessel
"	23:45		"	perfect: ship + ship wake
-15:25	:27		5k	perfect, but dirty roll, ind. wake (←)
5k — " :	:	5kft		+ another one shortly later
— "				
— " 36	:23		5k	~35 - 55 roll variation
				⇒ at horizon several ships in the FOV of the IR cam !!
Last recording at:				
15:36:23				
		OFF		
				DONE!

11/5/06

SWS FLIGHT LOG SHEET

Flight # B197 | Date 11/5/06 | Operator(s) WILSON | log page 1 of 3

Time	Run id	Alt/FL	Mirr Pos	Int Times Vis	Int Times NIR	Remarks LAND EMISS over NORFOLK!
105500Z						SWS PROGRAM START.
105940Z						AIRBORNE.
110057Z			180			
110131						dark - rubbish - shutters suspect
110214				250	500	dark - better
110250			180	-"-	-"-	measure.
111235			180	200	1000	dark
111302			180	200	1000	measure
111122	P1					COMMS PROBLEMS !!! All STOP!
113						
113000Z						SHIMS ON for LATER - OK
						control shutters using diggexe on rack pc.
						SWS on rack pc. Not using shutters as intermittent. Manual shutter in use for dark measurements. Bit of a fapp but seems to work.
113700	R1.2	1000ft	180	75	400	SWS INT TIMES
			SHIM	50	400	SHIM INT TIMES
113831	R1.2					end R1.2
113922			180	150	400	SWS DARK
113932Z			-"-	-"-	-"-	SWS measure
114103	R1.3	1000ft	180	150	400	
114245						SWS IR dropped out.
						SWS stop & restart.
114700		1000ft	180	150	400	SWS NIR BACK UP!
115055Z	R1.3					end R1.3
115200						NIR SWS out.
115314						back up (re-initialised)
						Data recorded as B197a
115316	R1.4	1000ft	180	150	400	Start R1.4
120428	R1.4	1000ft	180	150	400	end R1.4
~~120540~~			~~SHIM~~			~~dark~~
120540						
120610						
120642			SHIM	50	400	dark
120708				-"-	-"-	measure
120720						SWS stopped
120841						still fail. re starting 12V Power
123100			180	150	400	SWS back - running on "SWS v3ci No shutters".

data recorded as B197b

SWS FLIGHT LOG SHEET

Flight # B197 | Date 11/5/06 | Operator(s) WILSON | log page 2 of 3

Time	Run id	Alt/FL	Mirr Pos	Int Times Vis	Int Times NIR	Remarks
~~R2.2~~						
123805	R2.2	1000ft	180	150	400	end R2.2
			SHIM	50	400	
123917	R2.3					start R2.3
124338 Z	R2.3					end R 2.3 @
124429			SHIM			dark
124437						measure
* ~~124500~~						~~both shims & SWS drop out.~~
~~124950~~	~~R2.4~~					SWS ok ~~DATA B197b c~~
		1000ft	180	150	400	SHIMS VIS ONLY!
	R2.4		SHIM	50	—	end R2.4
125625	P6	1000ft↗				start P6
125711	P6	2000ft				end P6 @ 2000ft
* 125850						SHIM stopped to reinit NIR.
125919						No success on NIR.
130715			SHIM	50	400	SHIMS BACK (BOTH) cooler temp +20C
130603	P8	500ft↗	180	150	400	Start P8 SHIMS DATA B197d
134239	P8	FL300	SHIM	50	400	end P8
134527	R3.1	FL300				Start R3.1 Skc Run
135048	R3.1	-"-	-"-	-"-	-"-	end R3.1
135236	R3.2	FL300				start R3.2
135600 Z						SHIMS & SWS have both been
						working well since 1307. fingers crossed.
135637	R3.2	FL300	SHIM	50	400	end R3.2
135858 Z	R3.3	300	180	150	400	Start R3.3
140359 Z	R3.3	300				end R3.3
140615 Z	R4.1	-"-	SHIM	50	400	Start R4.1 down sun with 5° roll
140917 Z	R4.1	300				end R4.1
141148 Z	R4.2	300	180	150	400	Start R4.2 into sun with 5° roll
141448 Z	R4.2					end R4.2
141643 Z	P9	FL300↘				start P9
141927 Z	P9	FL280	180	150	400	interrupt
142039 Z	P9					re start P9
142704			180	250	1000	SWS Dark
142748			-"-	-"-	-"-	SWS measure
142904			SHIM	50	400	SHIMS DARK
142940		FL185	-"-	-"-	-"-	SHIMS measure
143140	P9	FL170				interrupt P9
143355	P9	FL170				re start P9
144231 Z	P9	FL090				interrupt P9 @ FL090
144407 Z	P9	FL090				re-start P9

cooler box temp +17°C

SWS FLIGHT LOG SHEET

Flight # B197 | Date 11/5/06 | Operator(s) WILSON | log page 3 of 3

Time	Run id	Alt/FL	Mirr Pos	Int Times Vis	Int Times NIR	Remarks
			180°	250	1000	SWS INT TIMES
			SHim	50	400	SHims TIMES
145213Z	Pa	1000ft				and Pa @ 1000FT
145442			180	500	2000	SWS DARK
145513						-"- measurto.
~~145536~~						~~SHims dark~~
145707				75	500	SHims DARK
145746						-"- measurto
						RANDOM SHIP & CHASING
						FOR NEON IR CAMERA.
153700						end of science. SWS & SHims
						STOP.

Flight Manager's Instrument Status Log

Flight No. **B** 197 Date: 11th May 2006

Instrument	Operated	Instrument	Operated
Navigation		**Cloud Physics**	
INU	**Y**	**Probes**	
XR5M GPS	**Y**	FFSSP	**Y**
Cruciform GPS	**Y**	PCASP	**Y**
Satcom C	**Y**	2D-P	**N**
Satcom H	**Y**	2D-C	N
Thermometers		Cloudscope	**N**
De-Iced Temp	**Y**	SID 1	**N**
Non De-Iced	**Y**	SID 2	**Y**
Heimann	**Y**	HVPS	**N**
Hygrometers		CIP25	**N**
G. Eastern	**Y**	CIP100	**N**
J. Williams	**Y**		
Nevzorov	**Y**		
TWC	**Y**	**Racks:**	
FWVS	**N**	INC	**N**
Radiometers		CCN / CPC	**Y**
Upper Clear	**Y**	CVI	**N**
" Red	**Y**		
" Silicon	**Y**		
" SHIMS	**Y**	**Aerosol**	
Lower Clear	Y	PSAP	**N**
" Red	**Y**	Nephelometer	**Y**
" Silicon	**Y**	Filters	**N**
		AMS	**N**
Large Radiometers			
IR Camera			
TAFTS	**N**		
MARSS	**Y**	**Others:**	
DEIMOS	**N**	IR Camera	**Y**
ARIES	**Y**	NIR TDLAS	N
SWS	Y	2BT O3	N
Chemistry		VACC	N
Ozone	Y	PEROXIDE	N
SO2	N	Formaldehyde	N
NOX	Y	ADA	N
CO	Y	CPI	N
ORAC	N	Noxy	N
PAN	N	PTRMS	N
PERCA	N	Bag Sampling	N
WAS	N	Tube Sampling	N

Faults / Incidents Log

Flight No. B197
Date: 11th May 2006

Instruments

1. AMTG – reset during pre-flight as display unstable
2. Core Chemistry – Ozone zero cal problems pre-flight, suspect internal leak
3. Flight Manager's Laptop – mains lead missing from drawer
4. Mission Scientist's Laptop – no HORACE data initially. IExplorer "working off-line", reset to Online then okay.
5. DRS program crashed and HORACE rebooted in flight. Data not recorded from 1129-1133. Restarted then okay.
6. TWC – status light came on during climb (FL190, -25C). Sample Temperature = 500 DRSU, below limit.

Aircraft

1. FFC Camera window caught some big flies. Request it is cleaned before next flight.

Satcom Calls

Nil

MISSING LOG SHEETS:

The following log sheets are not available for flight B197:

Log	Reason
Cloud Physics In Flight	Log probably not available
Cloud Physics Processing	Awaiting processing completion
IR Camera Processing log	IR Camera Processing log not currently available
Core Chemistry	pre flight only, unmanned operation on auto calibrate so no In Flight log
CCN	No operator listed but CCN / CPC listed as Y in Flight Managers Inst Status sheet. There is almost certainly no log sheet for CCN.

Document control

Revision	Date	Author	Comments
r0	26 Sep 2006	Doug Anderson	Initial version missing the above noted logs
r1			
r2			

VIDEO RECORDINGS:

3 x Downward Facing Cameras
3 x Up/Rearward Facing Cameras

Digital8 video recordings from this flight reside with :

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